



HS2 & Wendover Key Issues

Buckinghamshire Council Engagement
10th February 2021



Agenda

1. Design needs to handle three issues together
 - Hydrogeology & Downstream Aylesbury Flooding
 - Noise disturbance
 - A413 Traffic congestion
2. Wendover HS2 proposals
3. Buckinghamshire Council engagement
 - Evidence needed to de-risk Schedule 17 designs
 - Linkage between EKFB Schedule 17/33 packages

1. *Solving Noise and Hydrogeology / Flooding with Traffic benefit*

The Willows, Aylesbury , Feb 2014



Overview of Hydrogeology issue

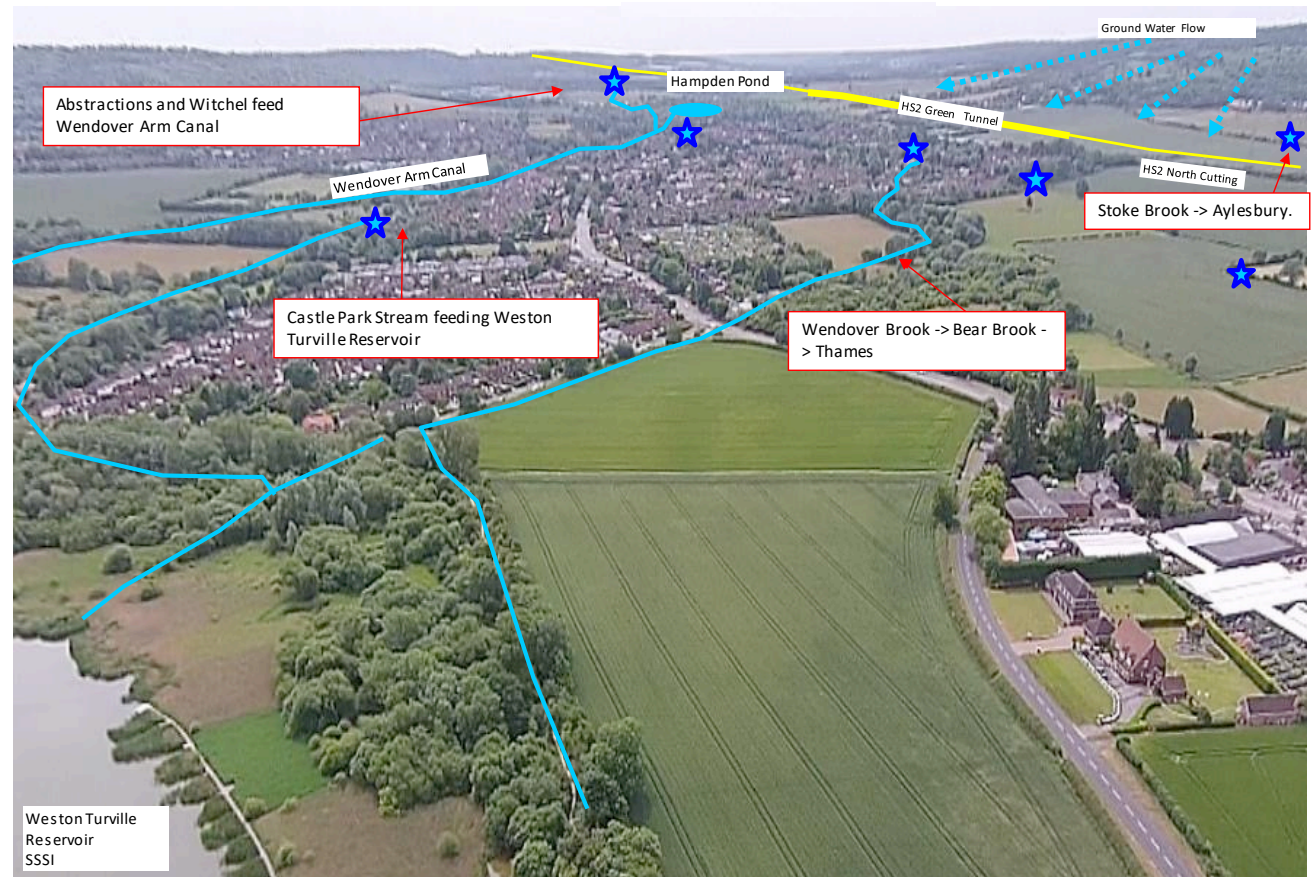
- The current HS2 design for a Cutting and (Green) tunnel at Wendover is expected to cause severe damage to the Coombe Hill aquifer and wider environs;
- Without adequate mitigation, the impact is likely to irretrievably damage the Weston Turville SSSI, reduce flows to Wendover Arm Canal and increase flood risk in Aylesbury;
- Local community view is that DfT and HS2 Ltd are disinclined to modify the scheduled works design despite the issues being known since 2015, *at all costs*, despite provisions in the Act that could mitigate this;
- A pathway forward is needed so that Buckinghamshire Council and Environment Agency can discharge their obligations and ensure satisfactory Schedule 17/33/WfD approval process and ensure U&A obligations are met;



Significant Risk of Environment and Amenity Damage with Current Design

Impact on the Environment (including AONB)

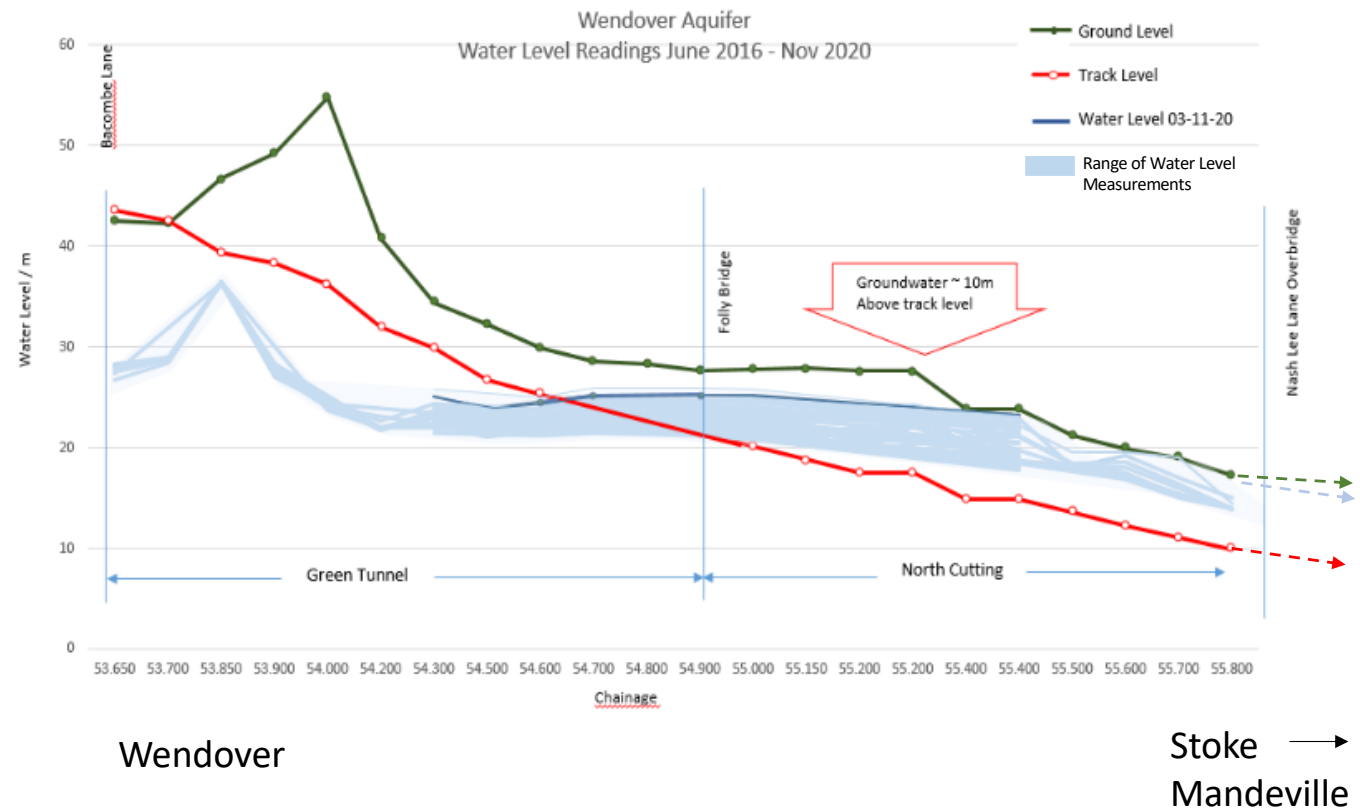
- HS2/EKGB confirm aquifer ground water will be diverted down cutting
- Wendover estimated total diverted 30 MI/d to Stoke Brook - EKFB claim a fraction of this
- Weston Turville SSSI and Wendover Arm at risk due to loss of water
- Increased risk of flooding in Aylesbury



Wendover Area showing HS2 route, affected springs and surface water features they support (view looking South)

Ground Water Levels

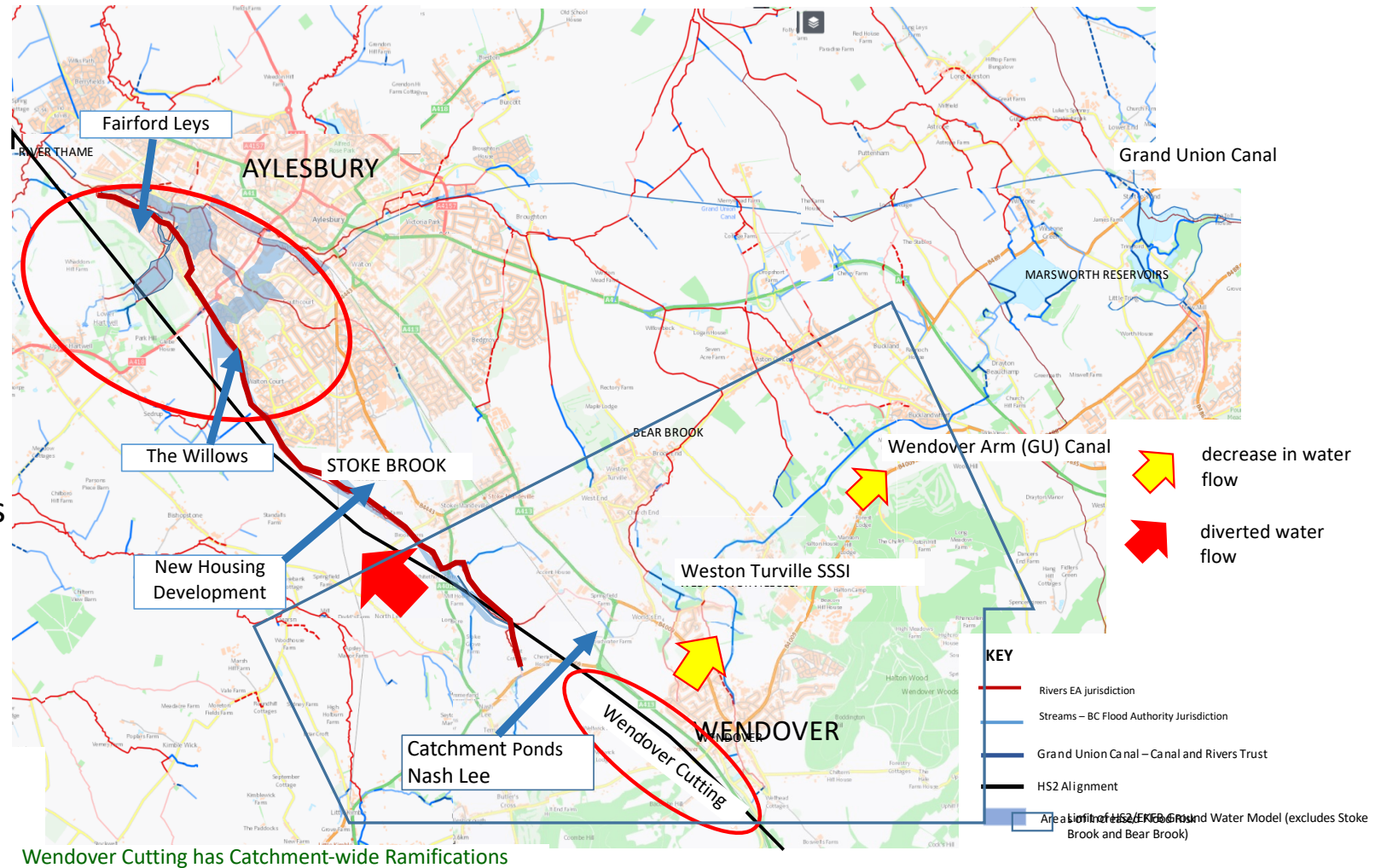
- Risk of groundwater ingress to North Cutting identified;
- HS2/EKFB to do further modelling based on pump tests;
- HS2/EKFB drainage design at Nash Lee will cover 1:100 year surface water flood event and not include diverted aquifer water;



Undertaking U&A 49 requires mitigation and recharge and U&A 50 not to increase flood risk

Our Concerns

- Catchment wide problem not an isolated section problem, but HS2 still don't recognise this;
- Current EKFB ground water modelling understates reality;
- HS2 confirm design has NO mitigation built in;
- Tunnel and Cutting design potentially flawed;



Hydrogeology and Flooding Summary

- Ground water model needs verification
- Detailed technical discussions (Ground water Modelling and Drainage) in progress
- BC Flood Management (Karen Fisher/James Lester) involved
- Environment Agency showing some interest but no response from Natural England & CRT
- EKFB Schedule 17/33/WfD submissions expected in May but remain in split packages
- Stoke Brook / Fairford Leys flood issues continue



North Cutting Pump Test Bore Hole under construction showing water escape 24/11/20

Schedule 33 Pt 5 of 2017 Act requires design to be submitted to Drainage Authority for approval *“Before beginning to construct any specified work” BUT default is given within 56 days “if it is neither given nor refused”*;

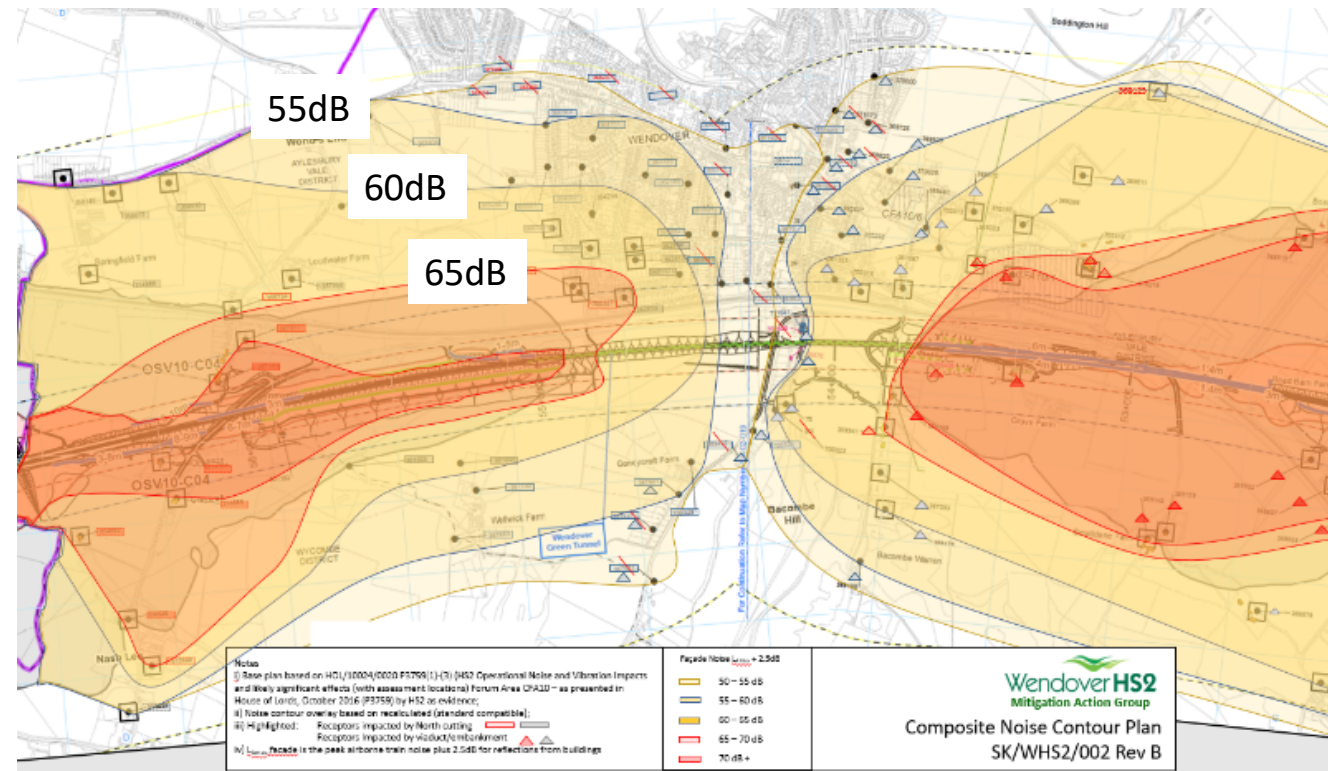
Noise

1. Noise worse than expectations (> 520 homes in Wendover affected)
2. Not feasible to rectify in future once built
3. Urgent need to integrate solution into design pre schedule 17(3) submission



Peak Noise Worse than Anticipated

- “3dB standard error” means +6dB to avoid exceeding LOAEL
- 60dB affected area extends out to a 54 dB contour affecting > 520 households
- Effects far worse on Wendover than original ES



...U&A 73 requires EKFB to seek reduced LOAEL exceedances

Risk of noise in excess of the ES

- Issues identified
 - No validation of the HS2 Noise Prediction Model
 - Inaccuracy of the HS2 NPM at low levels
 - Noise levels from use of HS2 Conventional Compatible trains and “slab” track
 - Additional reasonable worst case not adequately identified
 - Change in LOAEL target
 - Risk that track design does not account for trains “System Integration risk”
 - No sign that Noise Demonstration Report adequately covers the issues

Reinterpretation of PFN 14

- Planning Forum Note 14 sets out the agreed approach to Noise Demonstration Reports
- HS2 and the contractor appear to have reinterpreted this to suit themselves in contradiction of PFN 14
 - Failure to provide evidence to support their noise model or standard error constituents
 - Moving the goalposts (LOAEL target) without any comment
 - Use of expected rather than worst case assumptions without any justification
 - Failure to consider reality of integration risks
 - Placing value for money ahead of the three other criteria (including environmental impact and stakeholder engagement)
- WHS2 believe this needs to be strongly challenged; as lowering the planning hurdle increases the risk of future non-compliance with the Act

BC inability to rectify excess noise in future

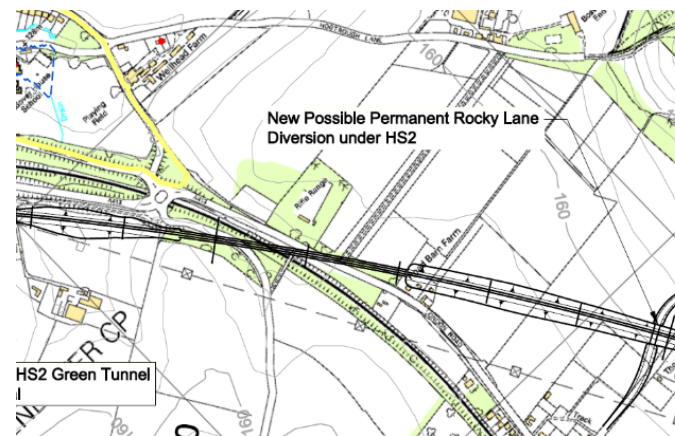
- Lack of agreement as to how train noise will be measured
 - Compliance with the Act / E20
 - Interpretation at multiple “receptors”
 - Method to be developed over next few years
- Lack of definition of “indicative mitigation”
 - Schedule 17 (3) optioneering leads to “good enough” solution
 - Lack of detail on higher performance solutions
 - No firm commitment to address noise in excess of ES requirement
 - Lack of clarity on Schedule 17 (9) mitigation options with “Bringing onto Use”

Noise Summary

- Technical meetings did not provide requested evidence
- BC Environmental Health (Richard Hiscock) involved
- Not clear if HS2/EKFB considering suggested mitigation options
- No visibility of EKFB design until “agreed” with BC
- BC need evidence prior to Schedule 17 submission to manage any future community issues

Traffic Issues

1. Construction issues and Local Traffic Management Plan
2. Long term congestion from Small Dean Viaduct



Construction & Local Traffic Management Plan

1. Worker movement at Small Dean Lane park & ride

- Extra movements AM and PM?
- Move the Park & Ride?

2. HGV movements on A413

- Current design requires double handling of spoil across tunnel spread
- Is there a significant under-estimate for HGV movements for Concrete Batching Plant ?
- LTMP and Schedule 17 design approval needs to limit out of hours HGV movement
- LTMP needs alternatives (e.g. establish railheads at Nash Lee Lane)

Small Dean Viaduct Impact

- EKFB alignment of A413 at Small Dean Viaduct
 - Single carriageway speed restriction moves Morning choke point back towards Wendover
 - Pre-Covid regular queueing on A413 Bypass, blocks London Road
 - Impact of additional Aylesbury housing developments ?
 - Jacobs forecasting congestion in central Wendover, prior to Halton redevelopment
- Include “dualling” as well as Greenway cycle path from the outset

Traffic Summary

- BC needs to reconsider the LTMP
 - Increase of HGV movements on A413 (~800) relative to TMP in AP4 (~156)
 - Impending emergency vehicles as result of congestion caused by increased vehicle movements
- No visibility of EKFB design for Small Dean
 - Speed restriction appears necessary
 - Obstacle to planned capacity increase



...severe detrimental impact on whole area anticipated without firm action

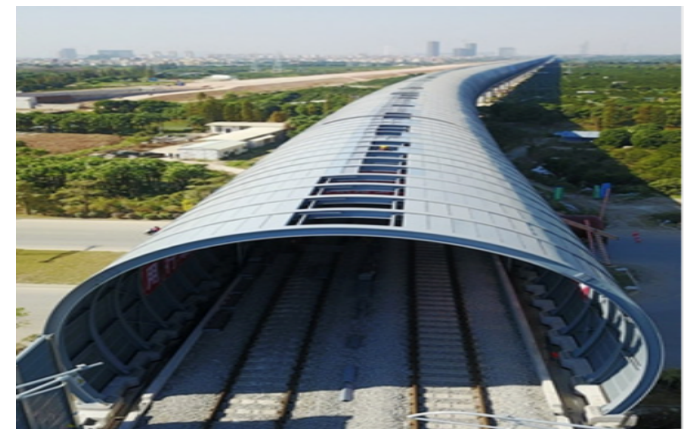
2. Wendover Reasonably Practicable Solutions (*Solving Noise and Hydrogeology / Flooding with Traffic benefit*)



Retaining Walls Example



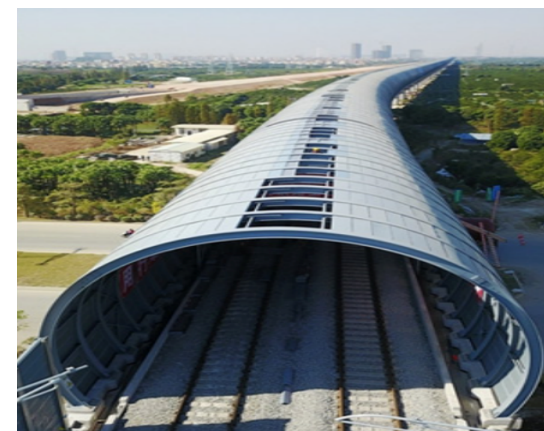
Arched Barriers on Small Dean Viaduct



WHS2 Proposed Mitigation

- “Retained” Wendover North Cutting
 - 7dB improvement brings ~402 houses within LOAEL
 - Minimises Aquifer disruption
 - Reduces excavation and enables off site pre-fabrication
 - Saving vs anticipated costs
- Arched barriers at Small Dean
 - 5dB improvement saves Church & Chiltern Way Academy outdoor activities, brings ~121 houses within LOAEL
 - Reuse of North Cutting savings, making overall project cost neutral

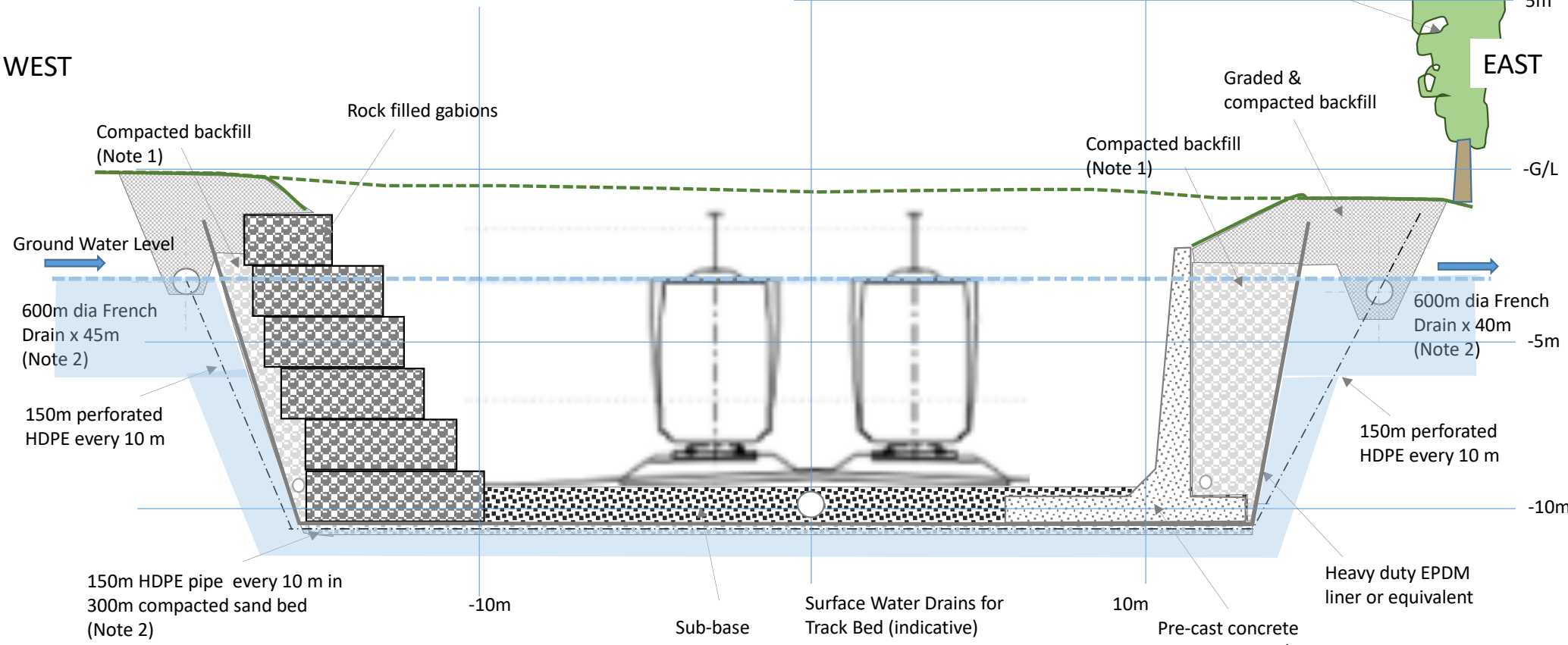
...should be integrated into the initial Schedule 17 design



Wendover North cutting Concept section for retained cutting View North

WEST

EAST



Notes

1. At each 50m intervals backfill separated by cast in situ concrete barrier or baffle made from sandbags to prevent water flow through backfill perpendicular to track
2. Each French drain section (45m long) to be inter-connected with 4 off under pass pipes to intercept and disperse aquifer water from West to East
3. Sheet piling to be avoided as this will intercept Ground water flow

3. Buckinghamshire Council Engagement



BC engagement

- Need an end to end approach
 - Require a combined Missenden to Aylesbury HS2 Working Group (similar to HS2 & EWR Working Group)
 - Address inter-relationship of EKFB's Schedule 17/33 "packages"
 - Affects Planning, Flood Management and Highways
- BC should insist on a rigorous pre-submission Schedule 17/33 review
 - Hillingdon experience; need for detailed evidence from HS2
 - Active technical challenge and review to designs
- BC should set out intended approval conditions, prior to Schedule 17/33

How can we help and support BC?

Summary

- Aquifer and Noise mitigation
 - Design is not robust and in sections
 - Lack of evidence provided
 - Effective mitigation needed
- Traffic issues
 - Address A413 congestion during and after construction now
- Pre-submission Schedule 17 evidence needed
 - How can we help & support BC?



Backup

2020 WHS2 Noise Survey - Interim results

- 71% of Wendover residents would prefer Visual impact over Noise
- 100% support “retained” North Cutting
- 93% support larger barriers at Small Dean
- 100% support “arched” rather than “classic” barriers
- 75% support “camouflaged” rather than “featured” barriers

Residents also took night time ambient measurements in 2019 survey and these suggest actual experience is 2dB lower than ES baseline